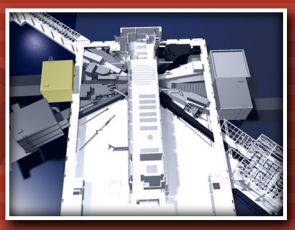
Instrument Fact Sheet

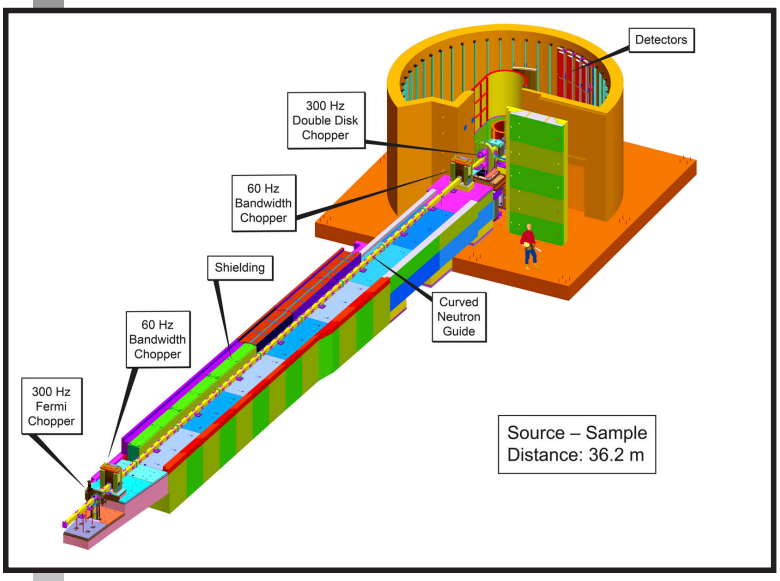
BEAM LINE 5

Spallation Neutron Source



CNCS – Cold Neutron Chopper Spectrometer

CNCS is a high-resolution, direct-geometry, multichopper inelastic spectrometer designed to provide flexibility in choice of energy resolution and to perform best at low-incident energies (2–50 meV). Although the current detector coverage around the sample is 1.7 sr, a later upgrade to 3 sr is possible. CNCS experiments typically use an energy resolution between 25 and 500 μeV. A broad variety of scientific problems, ranging from complex and quantum fluids to magnetism and chemical spectroscopy, can be addressed through experiments on the CNCS.



Engineering design of the CNCS beam line from the target monolith to the instrument satellite building.

Specifications

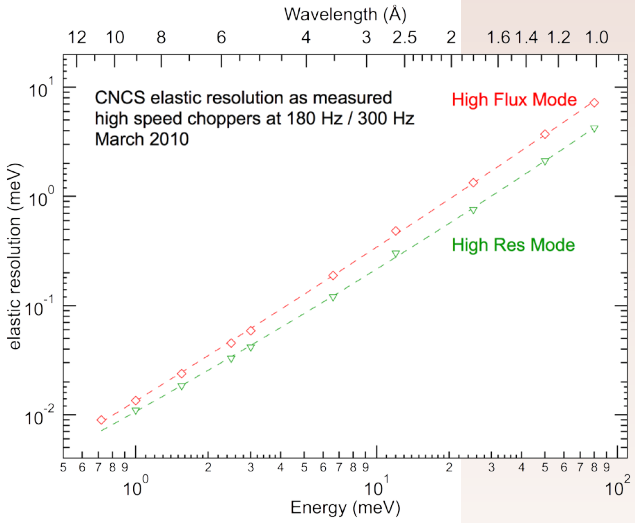
Source-to-sample distance	36.2 m
Sample-to-detector distance	3.5 m
Angular coverage	$^{-}$50–$^{+}$135° horizontally ±16° vertically
Energy resolution	10–500 μeV
Incident energy range	0.5–80 meV
Momentum transfer range	0.05–10 Å^{-1}
Detector type	^{3}He, LPSD

Status: Operational

Applications

CNCS is applicable primarily to studies in the following:

- Complex fluids: dilute protein solutions, biological gels, selective absorption of molecules on surfaces
- Dynamics in confined geometries
- Magnetism: low-dimensional systems; non-Fermi liquids; frustrated, disordered, or molecular magnets



For more information, contact

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http://neutrons.ornl.gov/instruments/SNS/CNCS

SNS

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